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***Review of Data from May 1996  
Sampling at the Orange Blossom  
Trail Site, Orlando, Florida***

***Prepared for:***

***Chevron Chemical Company  
San Ramon, California***

***July 1996***



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San Ramon, California 94583-0947**

**PTI Contract CA68-01-01**

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## **INTRODUCTION**

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This data report presents the results of groundwater sampling conducted May 21–22, 1996, at the former Chevron Orlando Orange Blossom Trail Site and the adjacent Armstrong Trailer Park property. These samples were collected by personnel from TASK Environmental of Tampa, Florida and analyzed at Core Laboratories of Tampa, Florida, and the analytical data were reviewed for quality assurance and quality control (QA/QC) by PTI Environmental Services in Boulder, Colorado. This data report is intended for review by the U.S. Environmental Protection Agency and the general public, and to be utilized in future studies pertaining to the former Chevron Orlando Orange Blossom Trail Site.

Samples were collected from groundwater monitoring wells MW-A, MW-D, MW-P, MW-1D, MW-1S, MW-2D, MW-2S, MW-3D, MW-3S, MW-4D, MW-4S, MW-5D, MW-5S, MW-6D, MW-6S, MW-7D, MW-7S, MW-8D, MW-8S, MW-9D, MW-10D, MW-10S, MW-11, MW-12, and MW-15. Complete analytical results are presented in Table 1 (Appendix A), and a summary of detected analytes is provided in Table 2. A Level III quality assurance review was conducted on the QA/QC information obtained from both the field sampling team and by Core Laboratories of Tampa, Florida. The Level III review evaluates procedures, accuracy, and precision of the analyses, but does not include examination of all original laboratory data. Laboratory data were reviewed for arsenic, chromium, lead, 33 volatile organic compounds (VOCs), 19 organochlorine pesticides, 7 polychlorinated biphenyls (PCBs), 23 organophosphorus pesticides, and 65 semivolatile acid/base/neutral (ABNs) compounds in 25 water samples, 3 field duplicate samples, 3 equipment rinsate blanks, 1 field blank, and 4 travel blanks (VOCs only) (Table 1).

To illustrate trends in groundwater concentrations of chemicals of interest (COIs), site maps are included in this data report that show historical groundwater concentrations (September 1990 through October 1995) of the risk-based COIs, which are benzene;  $\alpha$ -,  $\beta$ -, and  $\gamma$ -BHC; chlordane; 4,4-DDD; 1,4-dichlorobenezene; ethylbenzene; and xylene (Figures 1 through 9, Appendix B).

## QA/QC SAMPLES

The laboratory quality assurance and quality control (QA/QC) plan (Appendix B of Brown and Caldwell 1991) was developed according to criteria specified by the analytical methods, and calls for data validation through a review of the laboratory-provided quality assurance summary results. Therefore, the Level III data review consisted of an assessment of data quality based on holding times, completeness, results of blank analyses, instrument performance, accuracy of sample extraction efficiency in terms of surrogate compound recoveries, accuracy of matrix spike and laboratory control sample (LCS) recoveries, precision of duplicate matrix spike and duplicate LCS results, and the practical reporting limits (PRLs) used by the laboratory. The results of the quality control procedures employed by the laboratory and reviewed during the data assessment are presented in Tables 3 through 7.

Validation of the data reported by the laboratory was performed in accordance with procedures specified in *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA 1994a), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (U.S. EPA 1994b), and the data quality objectives established by Brown and Caldwell (1991).

## **SAMPLE NOMENCLATURE**

All sample names begin with **CO**, except duplicate samples, indicating the Chevron Orlando site. All water samples collected from the monitoring wells are labeled as **MW** and are identified with a number, letter, or combination thereof to indicate the sampling location. Thus, sample CO-MW-7D is the water sample collected from Chevron Orlando Monitoring Well number 7D. QA samples are designated **EB** for equipment blank, **FB** for field blank, and **TB** for travel blanks. Additionally, three field duplicates are tagged **DUP-1** (duplicate of CO-MW-P), **DUP-2** (duplicate of CO-MW-8D), and **DUP-3** (duplicate of CO-MW-3S).

## **RESULTS OF QUALITY ASSURANCE REVIEW**

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### **SUMMARY OF QUALIFIED DATA**

For the arsenic, chromium, and lead analyses, a total of 96 analytical results were reported by the laboratory. Of these results, 18 were reported at concentrations above the applicable PRL, and 78 were reported as undetected (the applicable PRL was reported by the laboratory with a U qualifier). No results were qualified or rejected during the quality assurance review. A summary of results for quality control procedures employed by the laboratory is presented in Table 3.

For the VOC analyses, a total of 1,188 analytical results were reported by the laboratory. Of these results, 70 were reported at concentrations above the applicable PRL, and 1,118 were reported as undetected (the applicable PRL was reported by the laboratory with a U qualifier). No results were qualified or rejected during the quality assurance review. A summary of results for quality control procedures employed by the laboratory is presented in Table 4.

For the organochlorine pesticide and PCB analyses, a total of 832 analytical results were reported by the laboratory. Of these results, 49 were reported at concentrations above the applicable PRL, and 783 were reported as undetected (the applicable PRL was reported by the laboratory with a U qualifier). No results were qualified or rejected during the quality assurance review. A summary of results for quality control procedures employed by the laboratory is presented in Table 5.

For the organophosphorus pesticide analyses, a total of 736 analytical results were reported as undetected (the applicable PRL was reported by the laboratory with a U qualifier) by the laboratory. No results were qualified or rejected during the quality assurance

review. A summary of results for quality control procedures employed by the laboratory is presented in Table 6.

For the semivolatile ABN analyses, a total of 2,080 analytical results were reported by the laboratory. Of these results, 16 were reported at concentrations above the applicable PRL, and 1,999 were reported as undetected (the applicable PRL was reported by the laboratory with a U qualifier). No results were qualified or rejected during the quality assurance review. A summary of results for quality control procedures employed by the laboratory is presented in Table 7.

## **SAMPLE SET**

Thirty-six water samples were submitted to the laboratory for arsenic, chromium, lead, VOCs, organochlorine pesticides and PCBs, organophosphorus pesticides, and semi-volatile compounds, including 3 field duplicate samples, 3 equipment rinsate blanks, 1 field blank, and 4 travel blanks (VOCs only).

## **DATA QUALITY ASSESSMENT**

The results of the quality control procedures employed during the analysis of the Chevron, Orlando field samples are discussed below. QC data were evaluated in terms of completeness, holding times, analytical methods, instrument performance, bias, and precision. Data quality was assessed according to requirements specified in *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (U.S. EPA 1994a), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (U.S. EPA 1994b), and the data quality objectives established by Brown and Caldwell (1991).

### **Completeness**

The results reported by the laboratory were 100 percent complete. No data were rejected during the quality assurance review.

### **Holding Times**

All analytical holding time constraints and sample preservation requirements (U.S. EPA 1992) were met for all samples.

### **Analytical Methods**

The analyses for all target analytes were completed according to procedures specified by applicable U.S. EPA analytical methods. The analytical methods are summarized in Table 8.

### **Instrument Performance**

The performance of the analytical instrument, as documented by the laboratory, was acceptable. No changes in instrument performance that would have resulted in the degradation of data quality were indicated during any analysis sequence.

### **Calibration**

Initial and continuing calibrations were completed for all target analytes and met the criteria for acceptable performance and frequency of analysis.

## **Method Blank Analyses**

No target analytes were detected above the applicable PRLs.

## **Accuracy**

The accuracy of the analytical results is evaluated in the following sections in terms of analytical bias (surrogate compound, matrix spike, and LCS recoveries) and precision (duplicate matrix spikes or duplicate LCSs).

### **Surrogate Compound Recoveries**

The recoveries reported by the laboratory for the applicable surrogate compounds (organic compound analyses only) added to all field and quality control samples met the criteria for acceptable performance, with seven exceptions.

For the analysis of organophosphorus pesticides, three recoveries reported for the surrogate compound 1,3-dimethyl-2-nitrobenzene were below the lower control limit. Recoveries of 36 percent, 32 percent, and 34 percent were reported for samples CO-MW-4D, CO-MW-8D, and CO-MW-10S, respectively. No organophosphorus pesticide results were qualified as a result of these exceedances, because surrogate recoveries were acceptable for all other sample analyses, all other quality control measurements (i.e., matrix spikes and LCSs) were in control, and no organophosphorus pesticides were detected in any sample.

For the analysis of semivolatile ABN compounds, four recoveries reported for the surrogate compound 2,4,6-tribromophenol were above the upper control limit. Recoveries of 130 percent, 124 percent, 136 percent, and 138 percent were reported for samples CO-MW-7S, CO-MW-12, and CO-MW-P, and DUP-1, respectively. No results were qualified in accordance with functional guidelines (U.S. EPA 1994), because two or more surrogate compounds were not outside acceptable control limits in the affected samples.

### **Matrix Spike Recoveries**

The recoveries reported by the laboratory for the matrix and duplicate matrix spike analyses, and the frequency of analysis, met the criteria for acceptable performance.

### **Laboratory Control Sample Recoveries**

The recoveries reported by the laboratory for the LCS and duplicate LCS analyses, and the frequency of analysis, met the criteria for acceptable performance.

### **Precision**

The results reported by the laboratory for all duplicate matrix analyses and duplicate LCS analyses, and the frequency of analysis, met the criteria for acceptable performance.

## **Practical Reporting Limits**

The applicable PRLs reported by the laboratory met requirements specified in the quality assurance project plan (Brown and Caldwell 1991).

## **FIELD QUALITY CONTROL**

The field quality control samples consisted of three sets of field duplicates, three equipment rinsate blanks, one field blank, and four travel blanks (for VOC analyses only).

### **Field Duplicates**

Three sets of field duplicates were submitted blind to the laboratory. Sample DUP-1 is a field duplicate of CO-MW-P, DUP-2 is a field duplicate of CO-MW-8D, and DUP-3 is a field duplicate of CO-MW-3S. The precision of all target analytes detected in these samples is acceptable.

### **Equipment Rinsate Blank**

No target analytes were detected in the three equipment rinsate blanks, with the exception of lead at a concentration of 6  $\mu\text{g}/\text{L}$  in sample CO-EB-02. No sample results were qualified based on the detection of lead in this equipment rinsate blank, because it appears to be an isolated instance (i.e., lead was not detected in the other two equipment rinsate blanks or the field blank).

### **Field Blank**

No target analytes were detected in the field blank.

### **Travel Blanks**

A total of four travel blanks were submitted to the laboratory for the analysis of VOCs to monitor cross-contamination during transport to the laboratory. No target compounds were detected above the applicable PRLs.

### **REFERENCES**

Brown and Caldwell. 1991. Quality assurance project plan for the Chevron Chemical Company Site, Orlando, Florida. Brown and Caldwell Consultants, Tampa, Florida.

U.S. EPA 1983. Methods for chemical analysis of water and wastes. EPA -600/4-79-020. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, OH.

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U.S. EPA. 1994a. USEPA Contract Laboratory Program national functional guidelines for organic data review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, DC.

U.S. EPA. 1994b. USEPA Contract Laboratory Program national functional guidelines for inorganic data review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, DC.

## **Appendix A**

### **Data Tables**

**TABLE 1. ANALYTICAL DATA FROM GROUNDWATER SAMPLES COLLECTED AT THE CHEVRON ORLANDO SITE, MAY 1996**  
 (All units  $\mu\text{g/L}$  unless otherwise noted)

Analyte	DUP-3									
	CO-MW-1S	CO-MW-1D	CO-MW-2S	CO-MW-2D	CO-MW-3S	CO-MW-3S	CO-MW-3D	CO-MW-4S	CO-MW-4D	
Arsenic	10 U	15								
Chromium (mg/L)	0.05 U	0.05 U	0.09	0.05 U	0.05 U					
Lead	5 U	5 U	9	8	13	12	5 U	7	5 U	
Chloromethane	2.4 U	2.4 U								
Bromomethane	4.0 U	4.0 U								
Dichlorodifluoromethane	2.1 U	2.1 U								
Vinyl chloride	0.8 U	0.8 U								
Chloroethane	1.4 U	1.4 U								
Methylene chloride	5.0 U	5.0 U								
Trichlorofluoromethane	0.5 U	0.5 U								
1,1-Dichloroethylene	1.0	0.5 U	0.5 U							
1,1-Dichloroethane	0.6 U	0.6 U								
trans-1,2-Dichloroethylene	0.8 U	0.8 U								
Chloroform	1.0 U	1.0 U								
1,2-Dichloroethane	1.4	1.0 U	1.0 U							
1,1,1-Trichloroethane	0.8 U	0.8 U								
Carbon tetrachloride	0.5 U	0.5 U								
Bromodichloromethane	0.6 U	0.6 U								
1,2-Dichloropropane	0.5 U	0.5 U								
trans-1,3-Dichloro-1-propene	0.8 U	0.8 U								
1,1,2-Trichloroethylene	0.9 U	0.9 U								
Dibromochloromethane	1.0 U	1.0 U								
1,1,2-Trichloroethane	2.4	1.0 U	1.0 U							
cis-1,3-Dichloro-1-propene	0.7 U	0.7 U								
Bromoform	2.0 U	2.0 U								
1,1,2,2-Tetrachloroethane	0.4 U	0.4 U								
1,1,2,2-Tetrachloroethylene	0.9 U	0.9 U								
Methyl tert-butyl ether	5.0 U	5.0 U								
Benzene	5.2	4.6	0.6 U	0.7	0.6 U	0.6 U	0.6 U	0.6	9.8	3.8
Toluene	7.4	4.1	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1 U	2.6
Chlorobenzene	26	16	1.3 U	1.4	1.3 U	1.3 U	1.3 U	1.3 U	38	15
Ethylbenzene	290	300	0.9 U	47	22	23	2.8	28	320	
Xylenes	800	610	0.9 U	130	22	23	2.9	5.1	910	
1,3-Dichlorobenzene	1.1 U	1.1 U								
1,4-Dichlorobenzene (8010/8020)	19	5.6	1.0 U	2.9	1.7	1.7	1.0 U	8.4	8.8	
1,2-Dichlorobenzene (8010/8020)	9.0	2.4	1.0 U	2.0	1.0 U	1.0 U	1.0 U	2.8	3.9	
Total VOA	1102.6	918.7	0.6 U	179.2	44	46	6.3	42.9	1236.4	
Surrogate 8010 (%)	103	106	95	85	93	90	95	93	97	
Surrogate 8020 (%)	96	98	99	98	97	97	98	98	98	

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	DUP-3									
	CO-MW-1S	CO-MW-1D	CO-MW-2S	CO-MW-2D	CO-MW-3S	CO-MW-3S	CO-MW-3D	CO-MW-4S	CO-MW-4D	
α-BHC	1.7	0.80	0.05 U	0.05 U	0.47	0.50	0.05 U	19	2.5	
β-BHC	1.4	0.88	0.05 U	0.24	0.94	0.94	0.05 U	11	4.1	
γ-BHC (Lindane)	0.05 U									
δ-BHC	3.4	1.9	0.05 U	0.15	0.67	0.71	0.05 U	26	6.4	
Heptachlor	0.05 U									
Aldrin	0.05 U									
Heptachlor epoxide	0.05 U									
Endosulfan I	0.05 U									
Dieldrin	0.1 U									
Endrin	0.1 U									
4,4-DDD	0.1 U									
Endosulfan II	0.1 U									
4,4-DDT	0.1 U									
4,4-DDE	0.1 U									
Endrin aldehyde	0.1 U									
Endosulfan sulfate	0.1 U									
Chlordane	1.0 U									
Methoxychlor	0.5 U									
Toxaphene	3.0 U									
PCB-1016	0.5 U									
PCB-1221	0.5 U									
PCB-1232	0.5 U									
PCB-1242	0.5 U									
PCB-1248	0.1 U									
PCB-1254	0.5 U									
PCB-1260	0.5 U									
Surrogate (%)	78	66	65	74	53	60	63	85	82	
Ethion	5.0 U									
Parathion ethyl	5.0 U									
Dichlorvos	5.0 U									
Mevinphos	5.0 U									
Demeton-S	5.0 U									
Ethoprop	5.0 U									
Naled	5.0 U									
Phorate	5.0 U									
Demeton-O	5.0 U									
Diazinon	5.0 U									
Disulfoton	5.0 U									
Parathion methyl	5.0 U									
Ronnel	5.0 U									
Chlorpyrifos	5.0 U									
Fenthion	5.0 U									

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-1S	CO-MW-1D	CO-MW-2S	CO-MW-2D	CO-MW-3S	DUP-3			
						CO-MW-3S	CO-MW-3D	CO-MW-4S	CO-MW-4D
Fensulfothion	5.0 U								
Trichloronate	5.0 U								
Stirophos	5.0 U								
Tokuthion	5.0 U								
Merphos	5.0 U								
Bolstar	5.0 U								
Azinphos methyl (Guthion)	5.0 U								
Coumaphos	5.0 U								
1,3-Dimethyl-2-nitrobenzene - Surrogate (%)	65	64	63	73	88	76	46	85	36 <sup>b</sup>
Acenaphthene	10 U								
Acenaphthylene	10 U								
Antracene	10 U								
Benzioc acid	10 U								
Benzo(a)anthracene	10 U								
Benzo(a)pyrene	10 U								
Benzo(b)fluoranthene	10 U								
Benzo(k)fluoranthene	10 U								
Benzo(g,h,i)perylene	10 U								
Benzyl alcohol	10 U								
4-Bromophenyl phenyl ether	10 U								
Butyl benzyl phthalate	10 U								
Bis(2-ethyl hexyl)phthalate	10 U								
Bis(2-chloroethyl)ether	10 U								
Bis(2-chloroisopropyl)ether	10 U								
2-Chloronaphthalene	10 U								
4-Chloroaniline	10 U								
4-Chlorophenyl phenyl ether	10 U								
Chrysene	10 U								
Dibenzo(a,h)anthracene	10 U								
1,2-Dichlorobenzene	10 U								
1,3-Dichlorobenzene	10 U								
1,4-Dichlorobenzene	11	10 U							
3,3-Dichlorobenzidine	10 U								
Dibenzofuran	10 U								
Diethyl phthalate	10 U								
Dimethyl phthalate	10 U								
Di-n-butyl phthalate	10 U								
2,4-Dinitrotoluene	10 U								
2,6-Dinitrotoluene	10 U								
Di-n-octyl phthalate	10 U								
Fluoranthene	10 U								
Fluorene	10 U								

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-1S	CO-MW-1D	CO-MW-2S	CO-MW-2D	CO-MW-3S	DUP-3			
						CO-MW-3S	CO-MW-3D	CO-MW-4S	CO-MW-4D
Hexachlorocyclopentadiene	10 U								
Hexachlorobenzene	10 U								
Hexachlorobutadiene	10 U								
Hexachloroethane	10 U								
Indeno(1,2,3-c,d)pyrene	10 U								
Isophorone	10 U								
2-Methylnaphthalene	12	13	10 U	34	16	17	10 U	10 U	31
Naphthalene	19	15	10 U	14	10 U				
2-Nitroaniline	10 U								
3-Nitroaniline	10 U								
4-Nitroaniline	10 U								
Nitrobenzene	10 U								
N-Nitrosodi-n-propylamine	10 U								
N-Nitrosodiphenylamine	10 U								
Phenanthrene	10 U								
Pyrene	10 U								
1,2,4-Trichlorobenzene	10 U	20	23						
2-Chlorophenol	10 U								
2-Methylphenol	10 U								
4-Chloro-3-methylphenol	10 U								
4-Methylphenol	10 U								
2,4-Dichlorophenol	10 U								
2,4-Dimethylphenol	10 U								
2,4-Dinitrophenol	10 U								
2-Methyl-4,6-Dinitrophenol	10 U								
2-Nitrophenol	10 U								
4-Nitrophenol	10 U								
Pentachlorophenol	10 U								
Phenol	10 U								
2,4,5-Trichlorophenol	10 U								
2,4,6-Trichlorophenol	10 U								
Phenol-d6 - Surrogate (%)	29	30	29	29	36	39	39	31	45
2-Fluorophenol - Surrogate (%)	38	39	40	38	46	53	50	36	57
Nitrobenzene-d5 - Surrogate (%)	46	52	47	52	54	71	72	65	70
2-Fluorobiphenyl - Surrogate (%)	48	64	52	58	66	73	67	66	73
2,4,6-Tribromophenol - Surrogate (%)	69	90	82	86	92	83	83	54	85
Terphenyl-d14 - Surrogate (%)	76	114	95	116	140	76	111	90	117

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-5S	CO-MW-5D	CO-MW-6S	CO-MW-6D	CO-MW-7S	CO-MW-7D	CO-MW-8S	CO-MW-8D	DUP-2 CO-MW-8D
Arsenic	10 U								
Chromium (mg/L)	0.05 U								
Lead	5 U	5 U	8	5 U	5 U	22	5 U	5 U	5 U
Chloromethane	2.4 U								
Bromomethane	4.0 U								
Dichlorodifluoromethane	2.1 U								
Vinyl chloride	0.8 U								
Chloroethane	1.4 U								
Methylene chloride	5.0 U								
Trichlorofluoromethane	0.5 U								
1,1-Dichloroethylene	0.5 U								
1,1-Dichloroethane	0.6 U								
trans-1,2-Dichloroethylene	0.8 U								
Chloroform	1.0 U								
1,2-Dichloroethane	1.0 U								
1,1,1-Trichloroethane	0.8 U								
Carbon tetrachloride	0.5 U								
Bromodichloromethane	0.6 U								
1,2-Dichloropropane	0.5 U								
trans-1,3-Dichloro-1-propene	0.8 U								
1,1,2-Trichloroethylene	0.9 U								
Dibromochloromethane	1.0 U								
1,1,2-Trichloroethane	1.0 U								
cis-1,3-Dichloro-1-propene	0.7 U								
Bromoform	2.0 U								
1,1,2,2-Tetrachloroethane	0.4 U								
1,1,2,2-Tetrachloroethylene	0.9 U								
Methyl tert-butyl ether	5.0 U								
Benzene	0.6 U								
Toluene	1.0 U								
Chlorobenzene	1.3 U								
Ethylbenzene	0.9 U								
Xylenes	0.9 U	24	710	120					
1,3-Dichlorobenzene	1.1 U								
1,4-Dichlorobenzene (8010/8020)	1.0 U								
1,2-Dichlorobenzene (8010/8020)	1.0 U								
Total VOA	0.6 U	24	793.1	128.2	127.2				
Surrogate 8010 (%)	86	91	98	92	84	91	96	90	94
Surrogate 8020 (%)	100	98	101	94	86	100	101	98	99

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-5S	CO-MW-5D	CO-MW-6S	CO-MW-6D	CO-MW-7S	CO-MW-7D	CO-MW-8S	CO-MW-8D	DUP-2 CO-MW-8D
α-BHC	0.05 U	0.08	0.06						
β-BHC	0.05 U	0.06	0.06						
γ-BHC (Lindane)	0.05 U								
δ-BHC	0.05 U	0.05	0.05 U	0.05 U					
Heptachlor	0.05 U								
Aldrin	0.05 U								
Heptachlor epoxide	0.05 U								
Endosulfan I	0.05 U								
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.32	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U								
4,4-DDD	0.1 U								
Endosulfan II	0.1 U								
4,4-DDT	0.1 U								
4,4-DDE	0.1 U								
Endrin aldehyde	0.1 U								
Endosulfan sulfate	0.1 U								
Chlordane	1.0 U	1.0 U	1.0 U	1.0 U	3.4	1.0 U	1.0 U	1.0 U	1.0 U
Methoxychlor	0.5 U								
Toxaphene	3.0 U								
PCB-1016	0.5 U								
PCB-1221	0.5 U								
PCB-1232	0.5 U								
PCB-1242	0.5 U								
PCB-1248	0.1 U								
PCB-1254	0.5 U								
PCB-1260	0.5 U								
Surrogate (%)	67	53	81	79	52	50	76	70	82
Ethion	5.0 U								
Parathion ethyl	5.0 U								
Dichlorvos	5.0 U								
Mevinphos	5.0 U								
Demeton-S	5.0 U								
Ethoprop	5.0 U								
Naled	5.0 U								
Phorate	5.0 U								
Demeton-O	5.0 U								
Diazinon	5.0 U								
Disulfoton	5.0 U								
Parathion methyl	5.0 U								
Ronnel	5.0 U								
Chlorpyrifos	5.0 U								
Fenthion	5.0 U								

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-5S	CO-MW-5D	CO-MW-6S	CO-MW-6D	CO-MW-7S	CO-MW-7D	CO-MW-8S	CO-MW-8D	DUP-2 CO-MW-8D
Fensulfothion	5.0 U	5.0 U							
Trichloronate	5.0 U	5.0 U							
Stirophos	5.0 U	5.0 U							
Tokuthion	5.0 U	5.0 U							
Merphos	5.0 U	5.0 U							
Bolstar	5.0 U	5.0 U							
Azinphos methyl (Guthion)	5.0 U	5.0 U							
Coumaphos	5.0 U	5.0 U							
1,3-Dimethyl-2-nitrobenzene - Surrogate (%)	72	92	59	74	68	54	42	32 <sup>b</sup>	50 <sup>b</sup>
Acenaphthene	10 U	10 U							
Acenaphthylene	10 U	10 U							
Antracene	10 U	10 U							
Benzioc acid	10 U	10 U							
Benzo(a)anthracene	10 U	10 U							
Benzo(a)pyrene	10 U	10 U							
Benzo(b)fluoranthene	10 U	10 U							
Benzo(k)fluoranthene	10 U	10 U							
Benzo(g,h,i)perylene	10 U	10 U							
Benzyl alcohol	10 U	10 U							
4-Bromophenyl phenyl ether	10 U	10 U							
Butyl benzyl phthalate	10 U	10 U							
Bis(2-ethyl hexyl)phthalate	10 U	10 U							
Bis(2-chloroethyl)ether	10 U	10 U							
Bis(2-chloroisopropyl)ether	10 U	10 U							
2-Chloronaphthalene	10 U	10 U							
4-Chloroaniline	10 U	10 U							
4-Chlorophenyl phenyl ether	10 U	10 U							
Chrysene	10 U	10 U							
Dibenzo(a,h)anthracene	10 U	10 U							
1,2-Dichlorobenzene	10 U	10 U							
1,3-Dichlorobenzene	10 U	10 U							
1,4-Dichlorobenzene	10 U	10 U							
3,3-Dichlorobenzidine	10 U	10 U							
Dibenzofuran	10 U	10 U							
Diethyl phthalate	10 U	10 U							
Dimethyl phthalate	10 U	10 U							
Di-n-butyl phthalate	10 U	10 U							
2,4-Dinitrotoluene	10 U	10 U							
2,6-Dinitrotoluene	10 U	10 U							
Di-n-octyl phthalate	10 U	10 U							
Fluoranthene	10 U	10 U							
Fluorene	10 U	10 U							

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-5S	CO-MW-5D	CO-MW-6S	CO-MW-6D	CO-MW-7S	CO-MW-7D	CO-MW-8S	CO-MW-8D	DUP-2 CO-MW-8D
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U				
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U				
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U				
Hexachloroethane	10 U	10 U	10 U	10 U	10 U				
Indeno(1,2,3-c,d)pyrene	10 U	10 U	10 U	10 U	10 U				
Isophorone	10 U	10 U	10 U	10 U	10 U				
2-Methylnaphthalene	10 U	10 U	24	44	42				
Naphthalene	10 U	10 U	10 U	10	10 U				
2-Nitroaniline	10 U	10 U	10 U	10 U	10 U				
3-Nitroaniline	10 U	10 U	10 U	10 U	10 U				
4-Nitroaniline	10 U	10 U	10 U	10 U	10 U				
Nitrobenzene	10 U	10 U	10 U	10 U	10 U				
N-Nitrosodi-n-propylamine	10 U	10 U	10 U	10 U	10 U				
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U				
Phenanthrene	10 U	10 U	10 U	10 U	10 U				
Pyrene	10 U	10 U	10 U	10 U	10 U				
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U				
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U				
2-Methylphenol	10 U	10 U	10 U	10 U	10 U				
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U				
4-Methylphenol	10 U	10 U	10 U	10 U	10 U				
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U				
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U				
2,4-Dinitrophenol	10 U	10 U	10 U	10 U	10 U				
2-Methyl-4,6-Dinitrophenol	10 U	10 U	10 U	10 U	10 U				
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U				
4-Nitrophenol	10 U	10 U	10 U	10 U	10 U				
Pentachlorophenol	10 U	10 U	10 U	10 U	10 U				
Phenol	10 U	10 U	10 U	10 U	10 U				
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	10 U				
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U				
Phenol-d6 - Surrogate (%)	27	31	24	26	30	36	25	29	27
2-Fluorophenol - Surrogate (%)	41	37	37	41	47	52	38	36	38
Nitrobenzene-d5 - Surrogate (%)	67	60	41	48	58	56	45	57	52
2-Fluorobiphenyl - Surrogate (%)	69	63	47	53	67	62	57	64	56
2,4,6-Tribromophenol - Surrogate (%)	103	82	106	118	130 <sup>b</sup>	116	83	98	94
Terphenyl-d14 - Surrogate (%)	97	77	98	91	134	115	102	117	98

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-9D	CO-MW-10S	CO-MW-10D	CO-MW-11	CO-MW-12	CO-MW-15	CO-MW-A	CO-MW-D	CO-MW-P	DUP-1 CO-MW-P
Arsenic	25 U <sup>a</sup>	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chromium (mg/L)	0.11	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lead	120	15	5 U	10	9	7	6	5 U	5	5.0 U
Chloromethane	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
Bromomethane	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Dichlorodifluoromethane	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Vinyl chloride	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Chloroethane	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Methylene chloride	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
trans-1,2-Dichloroethylene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Chloroform	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloro-1-propene	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
1,1,2-Trichloroethylene	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Dibromochloromethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloro-1-propene	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Bromoform	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1,2,2-Tetrachloroethane	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethylene	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Methyl tert-butyl ether	5.0 U	5.0 U	67	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	2.2	3.9	2.0	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.4	1.3
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	6.8	6.9	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5.3	4.8
Ethylbenzene	2.6	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Xylenes	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
1,3-Dichlorobenzene	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
1,4-Dichlorobenzene (8010/8020)	2.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene (8010/8020)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total VOA	4.8	3.9	2.0	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.4	1.3
Surrogate 8010 (%)	95	92	86	94	89	84	95	90	100	89
Surrogate 8020 (%)	100	98	101	101	101	85	96	101	103	94

**TABLE 1. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-MW-9D	CO-MW-10S	CO-MW-10D	CO-MW-11	CO-MW-12	CO-MW-15	CO-MW-A	CO-MW-D	CO-MW-P	DUP-1 CO-MW-P
α-BHC	0.57	6.8	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	4.1	5.6
β-BHC	3.1	32	1.27	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	26	34
γ-BHC (Lindane)	0.05 U	6.6	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	4.1	5.8
δ-BHC	1.2	16	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	8.4	12
Heptachlor	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.36	0.44
Endrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.33	0.46
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chlordane	1.0 U	7.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methoxychlor	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
PCB-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1221	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1242	0.1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1248	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
PCB-1254	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1260	0.1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Surrogate (%)	55	65	69	64	48	84	56	76	80	94
Ethion	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U
Parathion ethyl	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U
Dichlorvos	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Mevinphos	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Demeton-S	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Ethoprop	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Naled	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phorate	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Demeton-O	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Diazinon	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Disulfoton	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Parathion methyl	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Ronnel	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chlorpyrifos	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Fenthion	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 1. (cont.)

(All units µg/L unless otherwise noted)

Analyte	CO-MW-9D	CO-MW-10S	CO-MW-10D	CO-MW-11	CO-MW-12	CO-MW-15	CO-MW-A	CO-MW-D	CO-MW-P	DUP-1 CO-MW-P
Fensulfothion	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloronate	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Stirophos	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tokuthion	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Merphos	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bolstar	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Azinphos methyl (Guthion)	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Coumaphos	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dimethyl-2-nitrobenzene - Surrogate (%)	59	34 <sup>b</sup>	43	64	44	100	72	95	51	59
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Antracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzioc acid	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethyl hexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroisopropyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

**TABLE 1. (cont.)**(All units  $\mu\text{g/L}$  unless otherwise noted)

Analyte	CO-MW-9D	CO-MW-10S	CO-MW-10D	CO-MW-11	CO-MW-12	CO-MW-15	CO-MW-A	CO-MW-D	CO-MW-P	DUP-1 CO-MW-P
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-c,d)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodi-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methyl-4,6-Dinitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol-d6 - Surrogate (%)	27	33	35	22	28	26	27	31	30	24
2-Fluorophenol - Surrogate (%)	32	45	44	34	40	35	41	45	44	38
Nitrobenzene-d5 - Surrogate (%)	65	63	53	56	51	64	62	70	62	33
2-Fluorobiphenyl - Surrogate (%)	74	70	62	58	62	68	70	72	68	36
2,4,6-Tribromophenol - Surrogate (%)	55	97	109	56	124 <sup>b</sup>	85	94	101	136 <sup>b</sup>	138 <sup>b</sup>
Terphenyl-d14 - Surrogate (%)	104	102	124	89	122	106	113	114	104	117

**TABLE 1. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-EB-01	CO-EB-02	CO-EB-03	CO-FB-01	CO-TB-01	CO-TB-02	CO-TB-03	CO-TB-04
Arsenic	10 U	10 U	10 U	10 U				
Chromium (mg/L)	0.05 U	0.05 U	0.05 U	0.05 U				
Lead	5 U	6	5 U	5 U				
Chloromethane	2.4 U							
Bromomethane	4.0 U							
Dichlorodifluoromethane	2.1 U							
Vinyl chloride	0.8 U							
Chloroethane	1.4 U							
Methylene chloride	5.0 U							
Trichlorofluormethane	0.5 U							
1,1-Dichloroethylene	0.5 U							
1,1-Dichloroethane	0.6 U							
trans-1,2-Dichloroethylene	0.8 U							
Chloroform	1.0 U							
1,2-Dichloroethane	1.0 U							
1,1,1-Trichloroethane	0.8 U							
Carbon tetrachloride	0.5 U							
Bromodichloromethane	0.6 U							
1,2-Dichloropropane	0.5 U							
trans-1,3-Dichloro-1-propene	0.8 U							
1,1,2-Trichloroethylene	0.9 U							
Dibromochloromethane	1.0 U							
1,1,2-Trichloroethane	1.0 U							
cis-1,3-Dichloro-1-propene	0.7 U							
Bromoform	2.0 U							
1,1,2,2-Tetrachloroethane	0.4 U							
1,1,2,2-Tetrachloroethylene	0.9 U							
Methyl tert-butyl ether	5.0 U							
Benzene	0.6 U							
Toluene	1.0 U							
Chlorobenzene	1.3 U							
Ethylbenzene	0.9 U							
Xylenes	0.9 U							
1,3-Dichlorobenzene	1.1 U							
1,4-Dichlorobenzene (8010/8020)	1.0 U							
1,2-Dichlorobenzene (8010/8020)	1.0 U							
Total VOA	0.6 U							
Surrogate 8010 (%)	91	109	95	92	98	90	95	96
Surrogate 8020 (%)	99	100	101	97	97	100	100	101

**TABLE 1. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-EB-01	CO-EB-02	CO-EB-03	CO-FB-01	CO-TB-01	CO-TB-02	CO-TB-03	CO-TB-04
α-BHC	0.05 U	0.05 U	0.05 U	0.05 U				
β-BHC	0.05 U	0.05 U	0.05 U	0.05 U				
γ-BHC (Lindane)	0.05 U	0.05 U	0.05 U	0.05 U				
δ-BHC	0.05 U	0.05 U	0.05 U	0.05 U				
Heptachlor	0.05 U	0.05 U	0.05 U	0.05 U				
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U				
Heptachlor epoxide	0.05 U	0.05 U	0.05 U	0.05 U				
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U				
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U				
Endrin	0.1 U	0.1 U	0.1 U	0.1 U				
4,4-DDD	0.1 U	0.1 U	0.1 U	0.1 U				
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U				
4,4-DDT	0.1 U	0.1 U	0.1 U	0.1 U				
4,4-DDE	0.1 U	0.1 U	0.1 U	0.1 U				
Endrin aldehyde	0.1 U	0.1 U	0.1 U	0.1 U				
Endosulfan sulfate	0.1 U	0.1 U	0.1 U	0.1 U				
Chlordane	1.0 U	1.0 U	1.0 U	1.0 U				
Methoxychlor	0.5 U	0.5 U	0.5 U	0.5 U				
Toxaphene	3.0 U	3.0 U	3.0 U	3.0 U				
PCB-1016	0.5 U	0.5 U	0.5 U	0.5 U				
PCB-1221	0.5 U	0.5 U	0.5 U	0.5 U				
PCB-1232	0.5 U	0.5 U	0.5 U	0.5 U				
PCB-1242	0.5 U	0.5 U	0.5 U	0.5 U				
PCB-1248	0.1 U	0.1 U	0.1 U	0.1 U				
PCB-1254	0.5 U	0.5 U	0.5 U	0.5 U				
PCB-1260	0.5 U	0.5 U	0.5 U	0.5 U				
Surrogate (%)	90	62	53	72				
Ethion	5.0 U	5.0 U	5.0 U	5.0 U				
Parathion ethyl	5.0 U	5.0 U	5.0 U	5.0 U				
Dichlorvos	5.0 U	5.0 U	5.0 U	5.0 U				
Mevinphos	5.0 U	5.0 U	5.0 U	5.0 U				
Demeton-S	5.0 U	5.0 U	5.0 U	5.0 U				
Ethoprop	5.0 U	5.0 U	5.0 U	5.0 U				
Naled	5.0 U	5.0 U	5.0 U	5.0 U				
Phorate	5.0 U	5.0 U	5.0 U	5.0 U				
Demeton-O	5.0 U	5.0 U	5.0 U	5.0 U				
Diazinon	5.0 U	5.0 U	5.0 U	5.0 U				
Disulfoton	5.0 U	5.0 U	5.0 U	5.0 U				
Parathion methyl	5.0 U	5.0 U	5.0 U	5.0 U				
Ronnel	5.0 U	5.0 U	5.0 U	5.0 U				
Chlorpyrifos	5.0 U	5.0 U	5.0 U	5.0 U				
Fenthion	5.0 U	5.0 U	5.0 U	5.0 U				

**TABLE 1. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-EB-01	CO-EB-02	CO-EB-03	CO-FB-01	CO-TB-01	CO-TB-02	CO-TB-03	CO-TB-04
Fensulfothion	5.0 U	5.0 U	5.0 U	5.0 U				
Trichloronate	5.0 U	5.0 U	5.0 U	5.0 U				
Stirophos	5.0 U	5.0 U	5.0 U	5.0 U				
Tokuthion	5.0 U	5.0 U	5.0 U	5.0 U				
Morphos	5.0 U	5.0 U	5.0 U	5.0 U				
Bolstar	5.0 U	5.0 U	5.0 U	5.0 U				
Azinphos methyl (Guthion)	5.0 U	5.0 U	5.0 U	5.0 U				
Coumaphos	5.0 U	5.0 U	5.0 U	5.0 U				
1,3-Dimethyl-2-nitrobenzene - Surrogate (%)	73	75	61	90				
Acenaphthene	10 U	10 U	10 U	10 U				
Acenaphthylene	10 U	10 U	10 U	10 U				
Antracene	10 U	10 U	10 U	10 U				
Benzioc acid	10 U	10 U	10 U	10 U				
Benzo(a)anthracene	10 U	10 U	10 U	10 U				
Benzo(a)pyrene	10 U	10 U	10 U	10 U				
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U				
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U				
Benzol(g,h,i)perylene	10 U	10 U	10 U	10 U				
Benzyl alcohol	10 U	10 U	10 U	10 U				
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U				
Butyl benzyl phthalate	10 U	10 U	10 U	10 U				
Bis(2-ethyl hexyl)phthalate	10 U	10 U	10 U	10 U				
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U				
Bis(2-chloroisopropyl)ether	10 U	10 U	10 U	10 U				
2-Chloronaphthalene	10 U	10 U	10 U	10 U				
4-Chloroaniline	10 U	10 U	10 U	10 U				
4-Chlorophenyl phenyl ether	10 U	10 U	10 U	10 U				
Chrysene	10 U	10 U	10 U	10 U				
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U				
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U				
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U				
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U				
3,3-Dichlorobenzidine	10 U	10 U	10 U	10 U				
Dibenzofuran	10 U	10 U	10 U	10 U				
Diethyl phthalate	10 U	10 U	10 U	10 U				
Dimethyl phthalate	10 U	10 U	10 U	10 U				
Di-n-butyl phthalate	10 U	10 U	10 U	10 U				
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U				
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U				
Di-n-octyl phthalate	10 U	10 U	10 U	10 U				
Fluoranthene	10 U	10 U	10 U	10 U				
Fluorene	10 U	10 U	10 U	10 U				

**TABLE 1. (cont.)**(All units  $\mu\text{g/L}$  unless otherwise noted)

Analyte	CO-EB-01	CO-EB-02	CO-EB-03	CO-FB-01	CO-TB-01	CO-TB-02	CO-TB-03	CO-TB-04
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U				
Hexachlorobenzene	10 U	10 U	10 U	10 U				
Hexachlorobutadiene	10 U	10 U	10 U	10 U				
Hexachloroethane	10 U	10 U	10 U	10 U				
Indeno(1,2,3-c,d)pyrene	10 U	10 U	10 U	10 U				
Isophorone	10 U	10 U	10 U	10 U				
2-Methylnaphthalene	10 U	10 U	10 U	10 U				
Naphthalene	10 U	10 U	10 U	10 U				
2-Nitroaniline	10 U	10 U	10 U	10 U				
3-Nitroaniline	10 U	10 U	10 U	10 U				
4-Nitroaniline	10 U	10 U	10 U	10 U				
Nitrobenzene	10 U	10 U	10 U	10 U				
N-Nitrosodi-n-propylamine	10 U	10 U	10 U	10 U				
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U				
Phenanthrene	10 U	10 U	10 U	10 U				
Pyrene	10 U	10 U	10 U	10 U				
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U				
2-Chlorophenol	10 U	10 U	10 U	10 U				
2-Methylphenol	10 U	10 U	10 U	10 U				
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U				
4-Methylphenol	10 U	10 U	10 U	10 U				
2,4-Dichlorophenol	10 U	10 U	10 U	10 U				
2,4-Dimethylphenol	10 U	10 U	10 U	10 U				
2,4-Dinitrophenol	10 U	10 U	10 U	10 U				
2-Methyl-4,6-Dinitrophenol	10 U	10 U	10 U	10 U				
2-Nitrophenol	10 U	10 U	10 U	10 U				
4-Nitrophenol	10 U	10 U	10 U	10 U				
Pentachlorophenol	10 U	10 U	10 U	10 U				
Phenol	10 U	10 U	10 U	10 U				
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U				
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U				
Phenol-d6 - Surrogate (%)	34	32	31	45				
2-Fluorophenol - Surrogate (%)	46	44	39	57				
Nitrobenzene-d5 - Surrogate (%)	63	78	50	73				
2-Fluorobiphenyl - Surrogate (%)	72	77	52	74				
2,4,6-Tribromophenol - Surrogate (%)	104	104	79	93				
Terphenyl-d14 - Surrogate (%)	134	122	94	90				

U = Not detected; value represents detection limit.

Blank space indicates no analyses performed.

<sup>a</sup> = Elevated quantitation limits resulting from matrix interferences.<sup>b</sup> = Surrogate recovery is not within laboratory control limits.

**TABLE 2. SUMMARY OF ALL DETECTED ANALYTES IN GROUNDWATER SAMPLES, CHEVRON ORLANDO SITE, MAY 1996**  
 (All units µg/L unless otherwise noted)

Analyte	DUP-3									
	CO-MW-1S	CO-MW-1D	CO-MW-2S	CO-MW-2D	CO-MW-3S	CO-MW-3S	CO-MW-3D	CO-MW-4S	CO-MW-4S	CO-MW-4D
Arsenic	10 U	15								
Chromium (mg/L)	0.05 U	0.05 U	0.09	0.05 U						
Lead	5 U	5 U	9	8	13	12	5 U	7	5 U	
1,1-Dichloroethylene	1.0	0.5 U								
1,2-Dichloroethane	1.4	1.0 U								
1,1,2-Trichloroethane	2.4	1.0 U								
Methyl tert-butyl ether	5.0 U									
Benzene	5.2	4.6	0.6 U	0.7	0.6 U	0.6 U	0.6	9.8	3.8	
Toluene	7.4	4.1	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1 U	2.6	
Chlorobenzene	26	16	1.3 U	1.4	1.3 U	1.3 U	1.3 U	38	15	
Ethylbenzene	290	300	0.9 U	47	22	23	2.8	28	320	
Xylenes	800	610	0.9 U	130	22	23	2.9	5.1	910	
1,4-Dichlorobenzene (8010/8020)	19	5.6	1.0 U	2.9	1.7	1.7	1.0 U	8.4	8.8	
1,2-Dichlorobenzene (8010/8020)	9.0	2.4	1.0 U	2.0	1.0 U	1.0 U	1.0 U	2.8	3.9	
Total VOA	1102.6	918.7	0.6 U	179.2	44	46	6.3	42.9	1236.4	
α-BHC	1.7	0.80	0.05 U	0.05 U	0.47	0.50	0.05 U	19	2.5	
β-BHC	1.4	0.88	0.05 U	0.24	0.94	0.94	0.05 U	11	4.1	
γ-BHC (Lindane)	0.05 U									
δ-BHC	3.4	1.9	0.05 U	0.15	0.67	0.71	0.05 U	26	6.4	
Dieldrin	0.1 U									
4,4-DDE	0.1 U									
Chlordane	1.0 U									
1,4-Dichlorobenzene	11	10 U								
2-MethylNaphthalene	12	13	10 U	34	16	17	10 U	10 U	31	
Naphthalene	19	15	10 U	14	10 U					
1,2,4-Trichlorobenzene	10 U	20	23							

**TABLE 2. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-MW-5S	CO-MW-5D	CO-MW-6S	CO-MW-6D	CO-MW-7S	CO-MW-7D	CO-MW-8S	CO-MW-8D	DUP-2 CO-MW-8D
Arsenic	10 U								
Chromium (mg/L)	0.05 U								
Lead	5 U	5 U	8	5 U	5 U	22	5 U	5 U	5 U
1,1-Dichloroethylene	0.5 U								
1,2-Dichloroethane	1.0 U								
1,1,2-Trichloroethane	1.0 U								
Methyl tert-butyl ether	5.0 U								
Benzene	0.6 U	1.6	0.6 U	0.6 U					
Toluene	1.0 U	1.5	1.2	1.1					
Chlorobenzene	1.3 U	1.4	1.3 U	1.3 U					
Ethylbenzene	0.9 U	80	7.0	6.1					
Xylenes	0.9 U	24	710	120	120				
1,4-Dichlorobenzene (8010/8020)	1.0 U								
1,2-Dichlorobenzene (8010/8020)	1.0 U								
Total VOA	0.6 U	24	793.1	128.2	127.2				
$\alpha$ -BHC	0.05 U	0.08	0.06						
$\beta$ -BHC	0.05 U	0.06	0.06						
$\gamma$ -BHC (Lindane)	0.05 U								
$\delta$ -BHC	0.05 U	0.05	0.05 U	0.05 U					
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.32	0.1 U	0.1 U	0.1 U	0.1 U
4,4-DDE	0.1 U								
Chlordane	1.0 U	1.0 U	1.0 U	1.0 U	3.4	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	10 U								
2-Methylnaphthalene	10 U	24	44	42					
Naphthalene	10 U	10	10 U						
1,2,4-Trichlorobenzene	10 U								

**TABLE 2. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-MW-9D	CO-MW-10S	CO-MW-10D	CO-MW-11	CO-MW-12	CO-MW-15	CO-MW-A	CO-MW-D	CO-MW-P	DUP-1 CO-MW-P
Arsenic	25 U <sup>a</sup>	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chromium (mg/L)	0.11	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lead	120	15	5 U	10	9	7	6	5 U	5	5.0 U
1,1-Dichloroethylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	5.0 U	5.0 U	67	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	2.2	3.9	2.0	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.4	1.3
Toluene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	6.8	6.9	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5.3	4.8
Ethylbenzene	2.6	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Xylenes	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
1,4-Dichlorobenzene (8010/8020)	2.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene (8010/8020)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total VOA	4.8	3.9	2.0	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.4	1.3
α-BHC	0.57	6.8	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	4.1	5.6
β-BHC	3.1	32	1.27	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	26	34
γ-BHC (Lindane)	0.05 U	6.6	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	4.1	5.8
δ-BHC	1.2	16	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	8.4	12
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.36	0.44
4,4-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.33	0.46
Chlordane	1.0 U	7.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

**TABLE 2. (cont.)**

(All units µg/L unless otherwise noted)

Analyte	CO-EB-01	CO-EB-02	CO-EB-03	CO-FB-01	CO-TB-01	CO-TB-02	CO-TB-03	CO-TB-04
Arsenic	10 U	10 U	10 U	10 U				
Chromium (mg/L)	0.05 U	0.05 U	0.05 U	0.05 U				
Lead	5 U	6	5 U	5 U				
1,1-Dichloroethylene	0.5 U							
1,2-Dichloroethane	1.0 U							
1,1,2-Trichloroethane	1.0 U							
Methyl tert-butyl ether	5.0 U							
Benzene	0.6 U							
Toluene	1.0 U							
Chlorobenzene	1.3 U							
Ethylbenzene	0.9 U							
Xylenes	0.9 U							
1,4-Dichlorobenzene (8010/8020)	1.0 U							
1,2-Dichlorobenzene (8010/8020)	1.0 U							
Total VOA	0.6 U							
α-BHC	0.05 U	0.05 U	0.05 U	0.05 U				
β-BHC	0.05 U	0.05 U	0.05 U	0.05 U				
γ-BHC (Lindane)	0.05 U	0.05 U	0.05 U	0.05 U				
δ-BHC	0.05 U	0.05 U	0.05 U	0.05 U				
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U				
4,4-DDE	0.1 U	0.1 U	0.1 U	0.1 U				
Chlordane	1.0 U	1.0 U	1.0 U	1.0 U				
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U				
2-Methylnaphthalene	10 U	10 U	10 U	10 U				
Naphthalene	10 U	10 U	10 U	10 U				
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U				

U = Not detected; value represents detection limit.

Blank space indicates no analyses performed.

a Elevated quantitation limits resulting from matrix interferences.

b Surrogate recovery is not within laboratory control limits.

**TABLE 3. SUMMARY OF QUALITY CONTROL CHECKS—ARSENIC, CHROMIUM, AND LEAD**

Quality Control Check	Status	Comment
Completeness	100 percent complete	96 results reported for the target compounds; no results were rejected
Holding times	Acceptable	
Analytical methods	Acceptable	See Analytical Methods section
Instrument performance	Acceptable	
Calibration	Acceptable	
Method blank	Acceptable	
Accuracy (bias or recovery)		
Matrix spike samples	Acceptable	
Laboratory control samples	Acceptable	
Accuracy (precision)	Acceptable	
Practical Reporting Limits	Acceptable	
Field quality control samples	Acceptable	
<b>OVERALL ASSESSMENT</b>	<b>ACCEPTABLE</b>	<b>NO RESULTS WERE QUALIFIED</b>

**TABLE 4. SUMMARY OF QUALITY CONTROL CHECKS—VOLATILE ORGANIC COMPOUNDS**

Quality Control Check	Status	Comment
Completeness	100 percent complete	1,188 results reported for the target compounds; no data were rejected
Holding times	Acceptable	
Analytical methods	Acceptable	See Analytical Methods section
Instrument performance	Acceptable	
Calibration	Acceptable	
Method blank	Acceptable	
Accuracy (bias or recovery)		
Surrogate compounds	Acceptable	
Matrix spike samples	Acceptable	
Laboratory control samples	Acceptable	
Accuracy (precision)	Acceptable	
Practical Reporting Limits	Acceptable	
Field quality control samples	Acceptable	
<b>OVERALL ASSESSMENT</b>	<b>ACCEPTABLE</b>	<b>NO RESULTS WERE QUALIFIED</b>

**TABLE 5. SUMMARY OF QUALITY CONTROL CHECKS—ORGANOCHLORINE PESTICIDES AND PCBs**

Quality Control Check	Status	Comment
Completeness	Acceptable	832 results reported for target organochlorine pesticides; no data were rejected
Holding times	Acceptable	
Analytical methods	Acceptable	
Instrument performance	Acceptable	
Calibration	Acceptable	
Method blank	Acceptable	
Accuracy (bias or recovery)		
Surrogate compounds	Acceptable	
Matrix spike samples	Acceptable	
Laboratory control samples	Acceptable	
Accuracy (precision)	Acceptable	
Practical Reporting Limits	Acceptable	
Field quality control samples	Acceptable	
<b>OVERALL ASSESSMENT</b>	<b>ACCEPTABLE</b>	<b>NO RESULTS WERE QUALIFIED</b>

**TABLE 6. SUMMARY OF QUALITY CONTROL CHECKS—ORGANOPHOSPHORUS PESTICIDES**

Quality Control Check	Status	Comment
Completeness	Acceptable	736 results reported for the target compounds; no data were rejected
Holding times	Acceptable	
Analytical methods	Acceptable	
Instrument performance	Acceptable	
Calibration	Acceptable	
Method blank	Acceptable	
Accuracy (bias or recovery)		
Surrogate compounds	Acceptable	
Matrix spike samples	Acceptable	
Laboratory control samples	Acceptable	
Accuracy (precision)	Acceptable	
Practical Reporting Limits	Acceptable	
Field quality control samples	Acceptable	
<b>OVERALL ASSESSMENT</b>	<b>ACCEPTABLE</b>	<b>NO RESULTS WERE QUALIFIED</b>

**TABLE 7. SUMMARY OF QUALITY CONTROL CHECKS—SEMICVOLATILE ABN COMPOUNDS**

Quality Control Check	Status	Comment
Completeness	100 percent complete	2,080 results reported for the target compounds; no results were rejected
Holding times	Acceptable	
Analytical methods	Acceptable	See Analytical Methods section
Instrument performance	Acceptable	
Calibration	Acceptable	
Method blank	Acceptable	
Accuracy (bias or recovery)		
Surrogate compounds	Acceptable	
Matrix spike samples	Acceptable	
Laboratory control samples	Acceptable	
Accuracy (precision)	Acceptable	
Practical Reporting Limits	Acceptable	
Field quality control samples	Acceptable	
<b>OVERALL ASSESSMENT</b>	<b>ACCEPTABLE</b>	<b>NO RESULTS WERE QUALIFIED</b>

**TABLE 8. SUMMARY OF U.S. EPA ANALYTICAL METHODS**

Analysis	Analytical Method	Reference
Organochlorine pesticides and PCBs	8080	U.S. EPA 1992
VOCs	8010/8020	U.S. EPA 1992
Organophosphorus pesticides	8140	U.S. EPA 1992
Semi-volatile ABN compounds	8270	U.S. EPA 1992
Arsenic	206.2	U.S. EPA 1983
Chromium	200.7	U.S. EPA 1991
Lead	239.2	U.S. EPA 1983

## **Appendix B**

### **Figures**

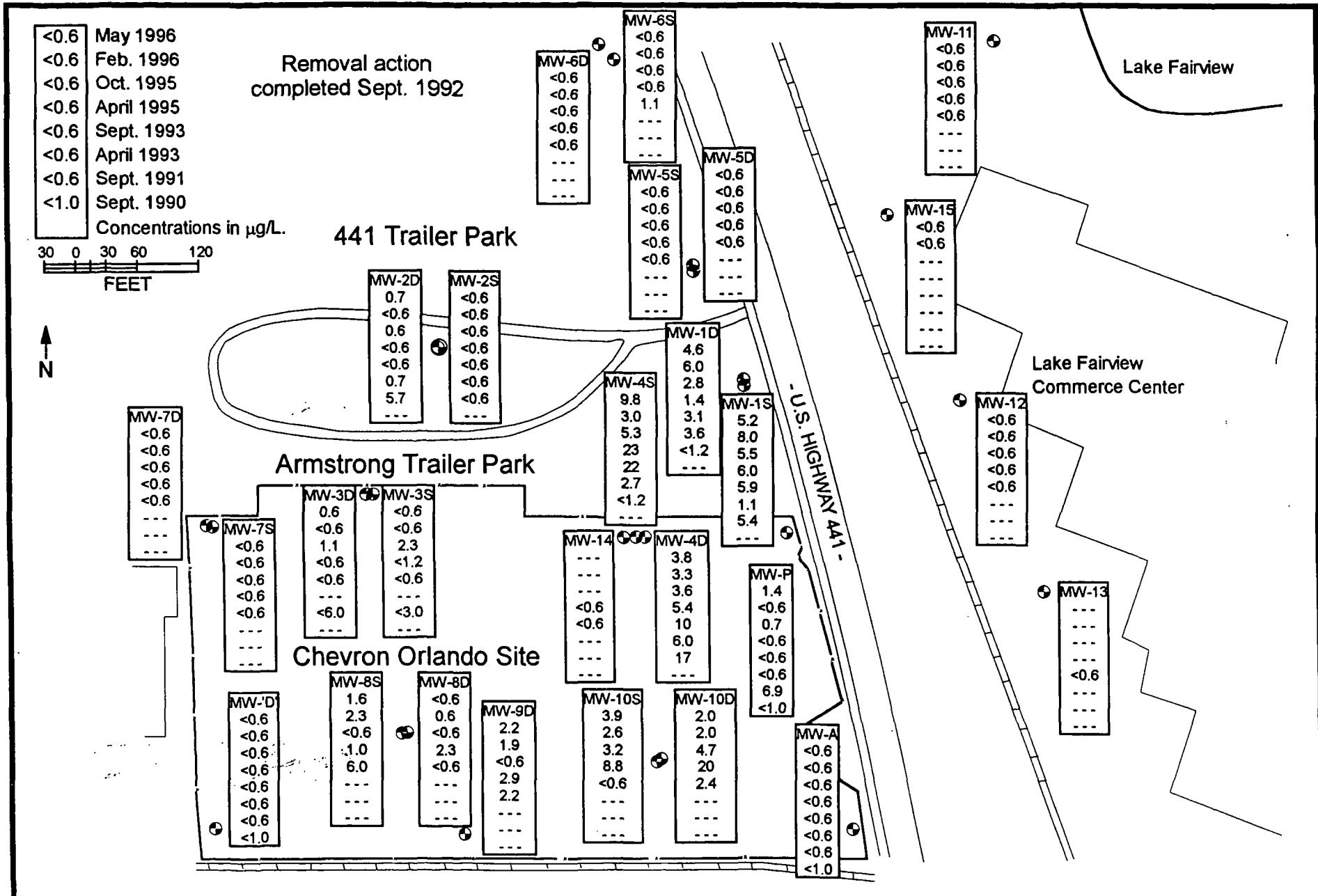


Figure 1. Groundwater benzene concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

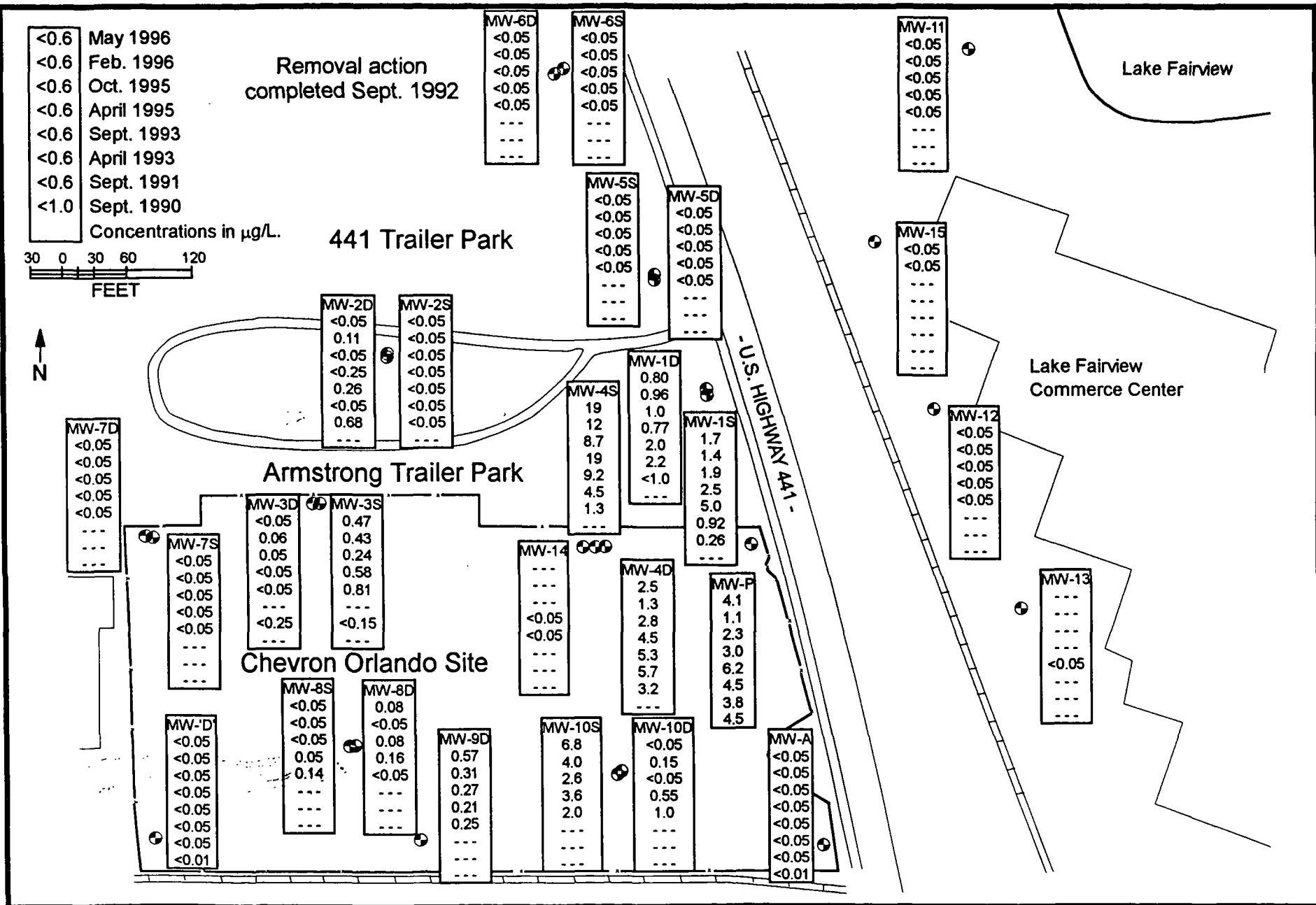


Figure 2. Groundwater  $\alpha$ -BHC concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

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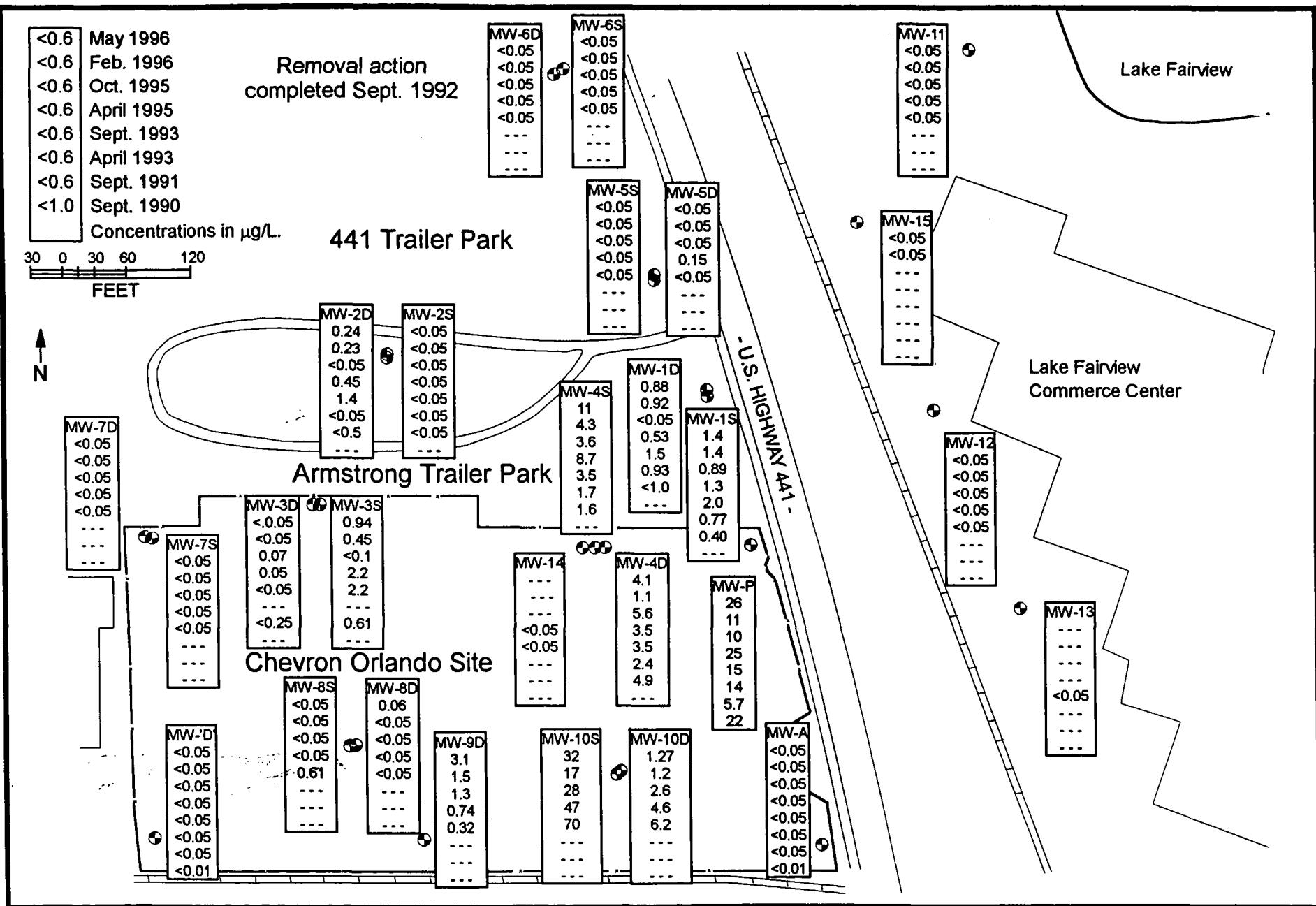


Figure 3. Groundwater  $\beta$ -BHC concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

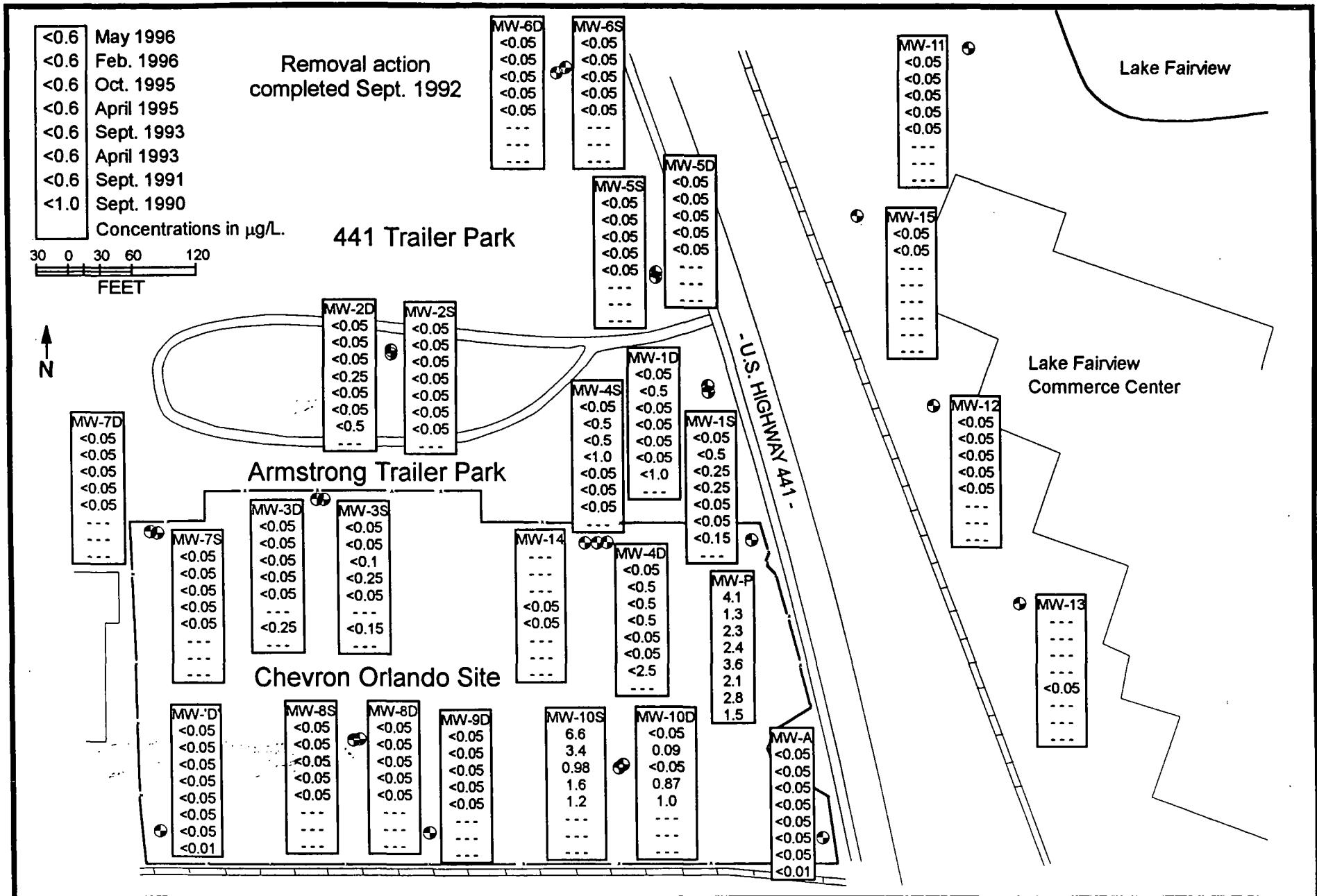


Figure 4. Groundwater lindane ( $\gamma$ -BHC) concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

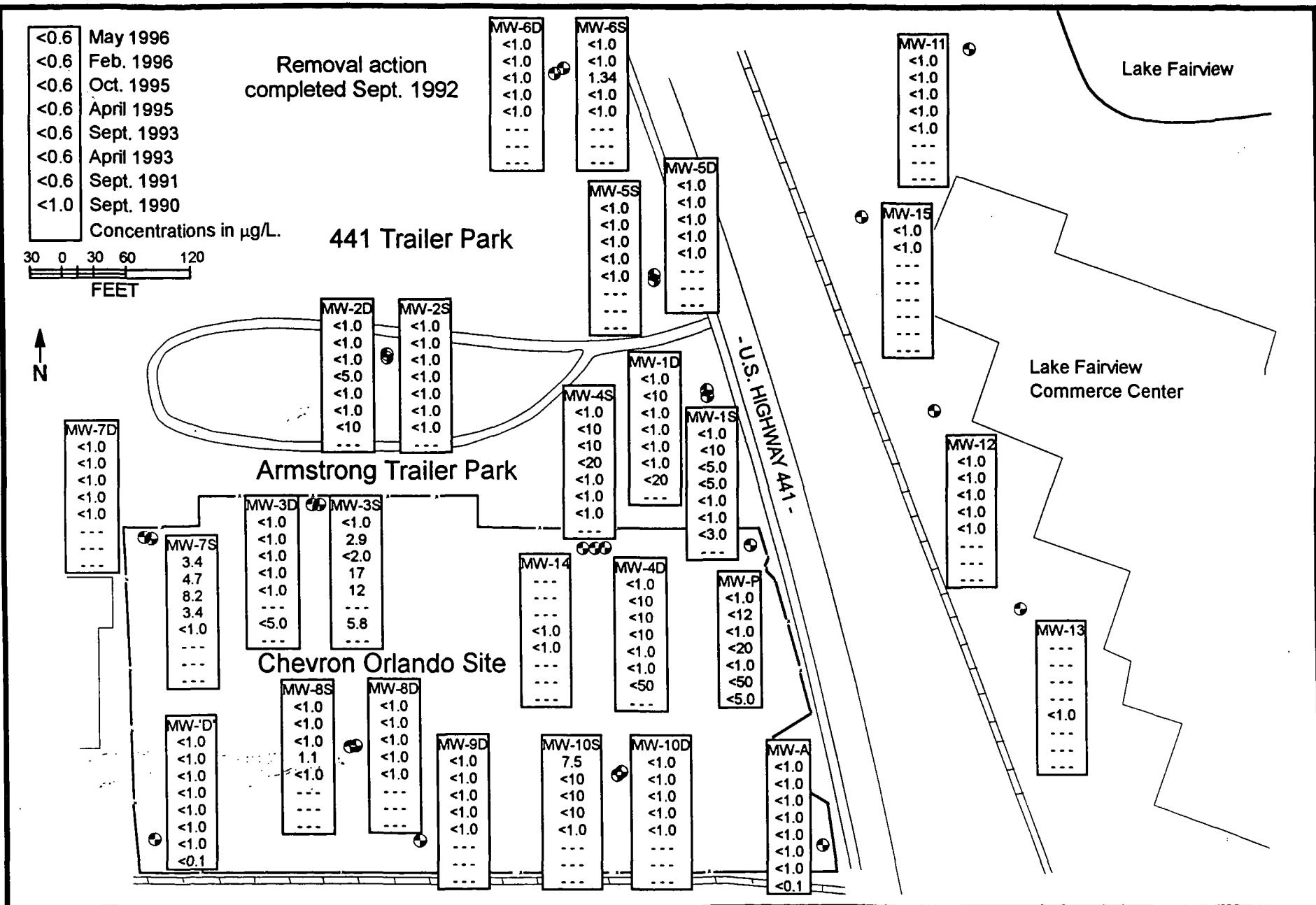


Figure 5. Groundwater chlordane concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility (Method 8080: organochlorine pesticides and PCBs).

<0.6	May 1996
<0.6	Feb. 1996
<0.6	Oct. 1995
<0.6	April 1995
<0.6	Sept. 1993
<0.6	April 1993
<0.6	Sept. 1991
<1.0	Sept. 1990

Concentrations in  $\mu\text{g/L}$ .

30 0 30 60 120  
FEET

Removal action completed Sept. 1992

441 Trailer Park

Armstrong Trailer Park

Chevron Orlando Site

MW-7D  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-D  
<0.1  
<0.1  
<0.1  
<0.1  
<0.3  
<0.3  
<0.02

MW-7S  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-8S  
<0.1  
<0.1  
<0.1  
<0.1  
0.15  
<0.1  
...

MW-8D  
<0.1  
<0.1  
<0.1  
<0.1  
0.12  
<0.1  
...

MW-9D  
<0.1  
0.12  
<0.1  
...

MW-2D  
<0.1  
<0.1  
<0.1  
<0.5  
<0.1  
<0.1  
<0.3  
<3.0  
<0.3

MW-2S  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
<0.3  
<0.3

MW-6D  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-6S  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-5S  
<0.1  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-5D  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-1D  
<0.1  
<1.0  
<0.1  
<1.0  
<2.0  
<0.1  
<0.3  
<0.3

MW-4S  
<0.1  
<1.0  
<0.1  
<1.0  
<2.0  
<0.1  
<0.3  
<0.3

MW-14  
...

MW-4D  
<0.1  
...

MW-10S  
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<1.0  
<1.0  
<1.0  
<0.1  
...

MW-10D  
<0.1  
<1.0  
<1.0  
<1.0  
<0.1  
...

MW-A  
<0.1  
<0.1  
<0.1  
<0.1  
<0.3  
<0.3  
<0.02

MW-1S  
<0.1  
<1.0  
<0.1  
<0.3  
<6.0  
...

MW-P  
<0.1  
<0.1  
<1.2  
<0.1  
<2.0  
<0.3  
<15  
<1.0

MW-11  
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<0.1  
<0.1  
<0.1  
<0.1  
...

MW-15  
<0.1  
<0.1  
...

MW-12  
<0.1  
<0.1  
<0.1  
<0.1  
...

MW-13  
...

U.S. HIGHWAY 441

Lake Fairview  
Commerce Center

Lake Fairview

Figure 6. Groundwater 4,4-DDD concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

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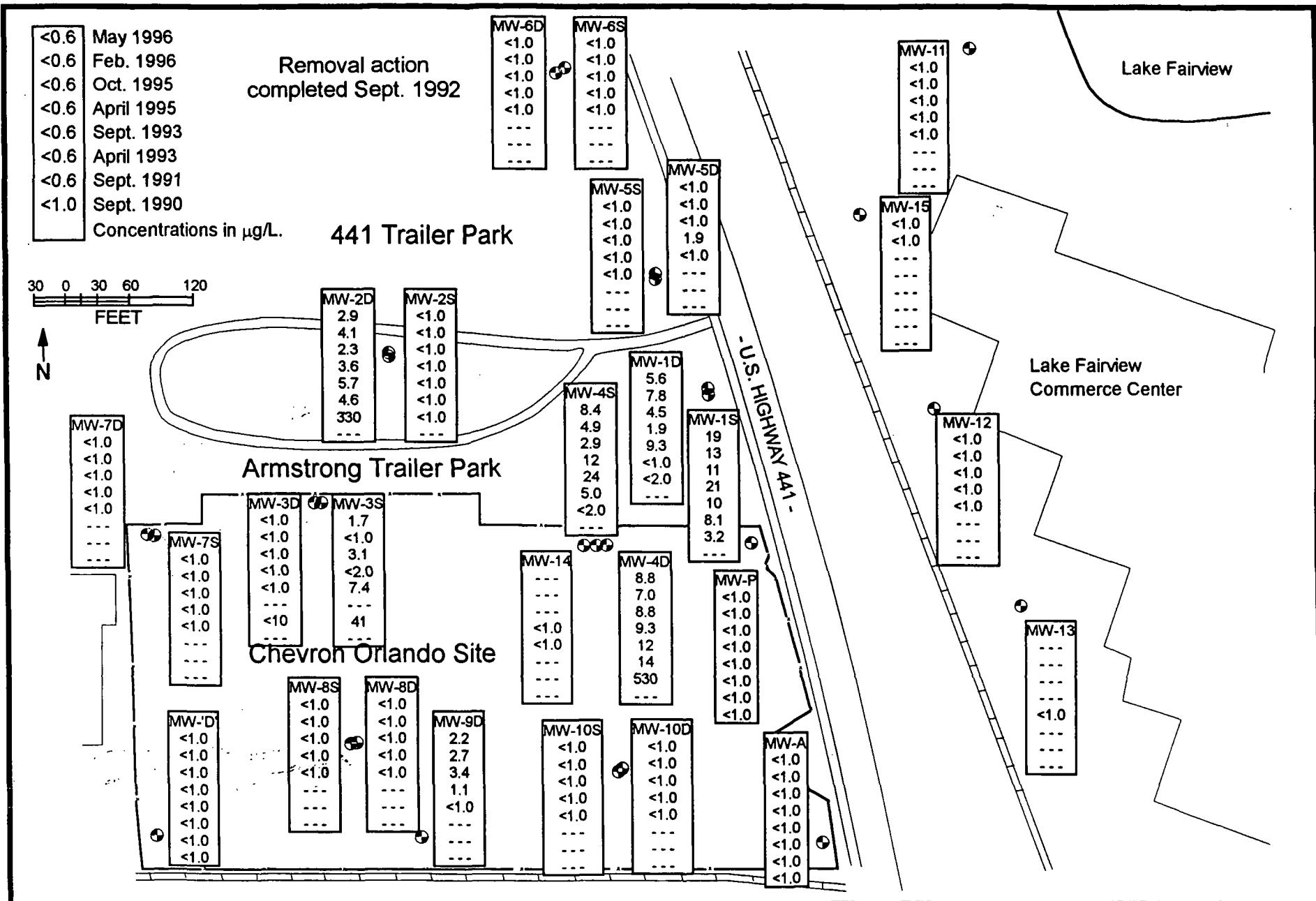


Figure 7. Groundwater 1,4-dichlorobenzene concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility (Method 8010/8020: volatile halocarbons/aromatics).

[aptca68/figures/orlando3.pre](#)

The logo for TASK Environmental. It features the word "TASK" in large, bold, black, sans-serif capital letters. Below "TASK", the word "ENVIRONMENTAL" is written in smaller, all-caps, black, sans-serif letters. A thin horizontal line runs across the bottom of the word "ENVIRONMENTAL".

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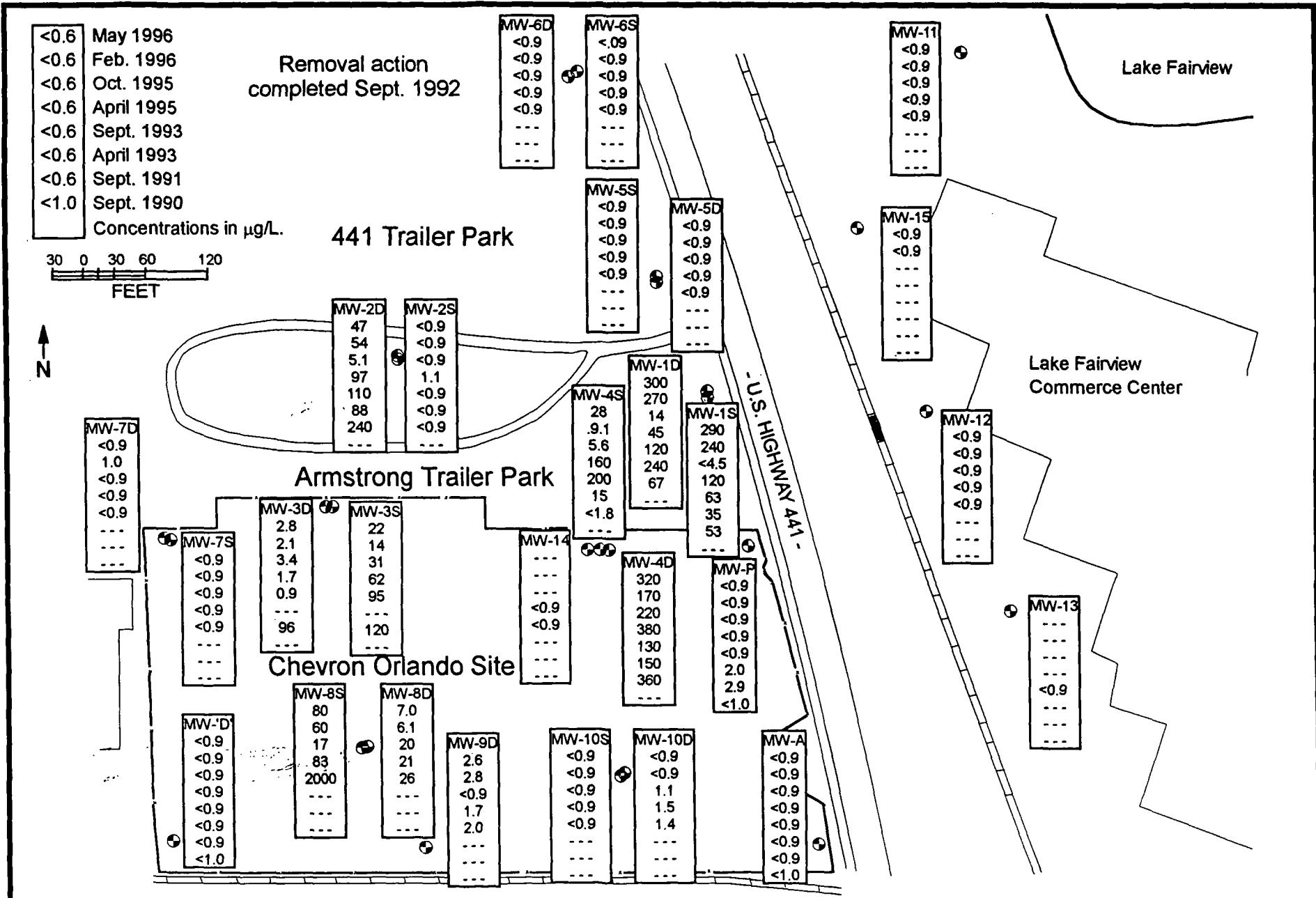


Figure 8. Groundwater ethylbenzene concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

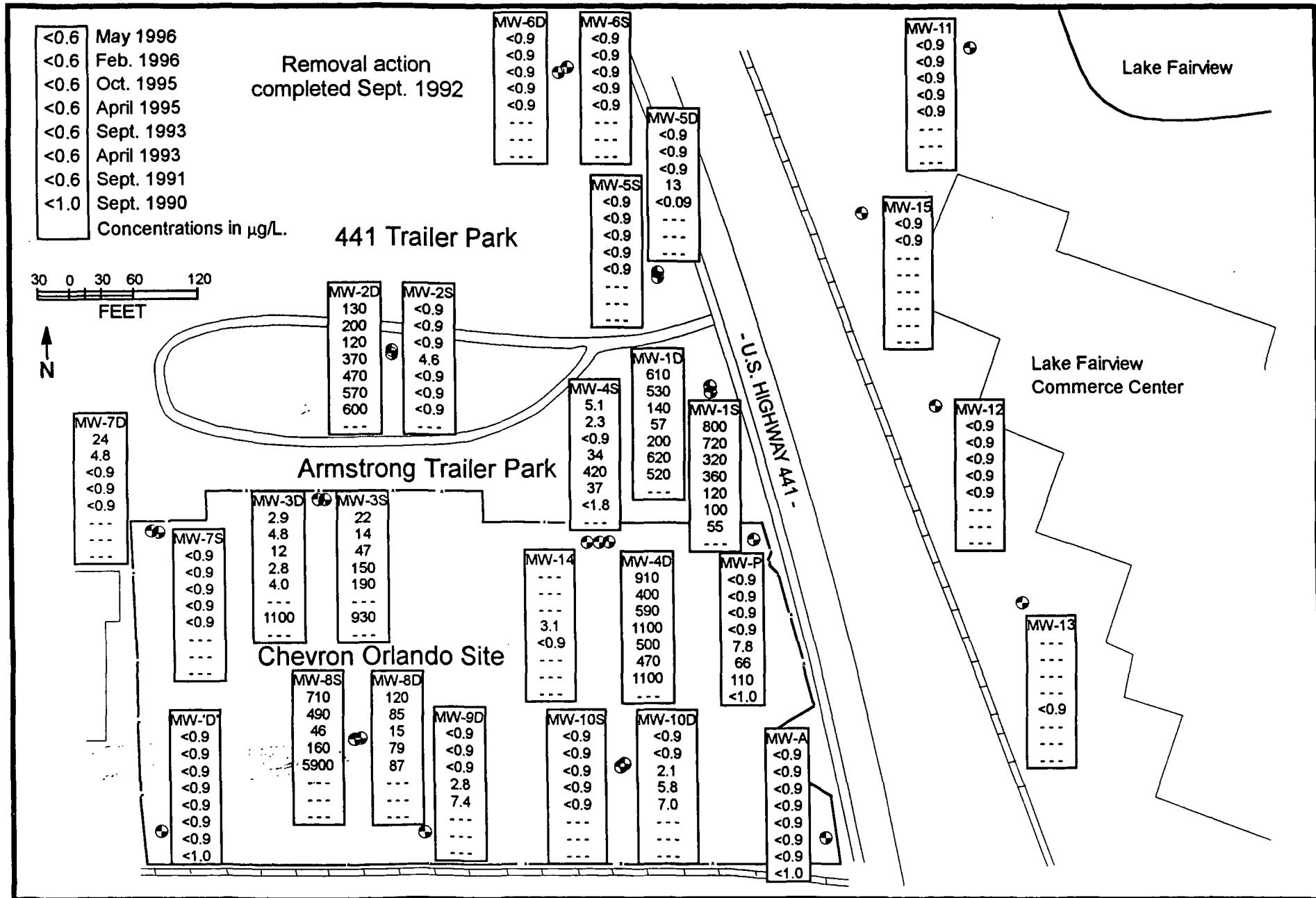


Figure 9. Groundwater xylene concentrations ( $\mu\text{g/L}$ ) through May 1996 sampling, Chevron Orlando facility.

ap/ca68/figures/orlando3.pr

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